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On the Geographic and Cultural Determinants of Bankruptcy*

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Abstract

This paper examines the role of geography and culture in explaining firm bankruptcy. We adopt survival analyses to model the bankruptcy risk of a firm, allowing for time-varying covariates. Based on a large sample from all major sectors of the Swiss economy, we find the following results: (i) The geographic location of a firm, which is characterized using a core-periphery approach, has a significant impact on its bankruptcy risk; (ii) Variables proxying for the cultural environment of a firm have significant explanatory power; (iii) The results of the previous literature on the standard determinants of bankruptcy are confirmed.

JEL Classification: C41, R10, Z10.

Keywords: Bankruptcy, geography, culture, exit.

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1 Introduction

From an economist's point of view, it seems natural to look for economic determinants when it comes to explaining economic outcomes. Yet, there is mounting evidence that this approach might lead to an incomplete understanding of some important economic phenomena. For instance, the "new economic geography"[1] emphasizes that geography not only plays an important role in explaining trade patterns, location choices, and investments, but also provides important insights for economic policy (Baldwin et al. 2003). In a recent paper, Guiso et al. (2006) report evidence that economic outcomes might also be affected by culture, where culture is defined as "customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation." In a related paper, McCleary and Barro (2006) argue that religion has a two-way interaction with political economy, with religion affecting individual characteristics (such as work ethic, thrift, and honesty) and economic performance, but also being determined by economic development and institutions. These authors provide evidence that religion might have explanatory power for important economic outcomes.

In this paper, we study the role of geography and culture in explaining bankruptcy, which is a key indicator of a firm's (low) economic performance. More specifically, we enrich the analysis of firm survival by employing arguably "non-standard" variables characterizing the geography and culture of a firm's environment. In doing so, we build on a relatively thin literature on the role of geography in explaining firm survival. Fotopoulos and Louri (2000), for instance, study a sample of 209 new firms in Greece, finding that firms located in the greater Athens area face an increased chance of survival compared to firms located in the rest of Greece. Berglund and Brännäs (2001) examine plants' entry and exit behavior in 283 Swedish municipalities, finding relevant variation in exits across municipalities. Using plant-level data, Dunne et al. (2005) analyze exit from seven regional manufacturing industries in the U.S. These authors find that a producer's experience in related geographic or product markets at the time of entering a market affects both the overall probability of exit and the mode of exit (i.e., plant shutdown versus product-line exit). Glauben et al. (forthcoming) study exit rates in agriculture across 326 counties in Western Germany. They find significant differences in exit rates of farms across regions. Taken together, these studies suggest that geography plays a relevant role in explaining firm survival, even though some of the underlying datasets comprise a fairly limited number of firms, regions, or industries. As to the role of culture in explaining firm survival, we want to emphasize that we focus on the

[1] Krugman (1991) is the classic reference. See Fujita et al. (1999) for an extensive treatment of the new economic geography. Fujita and Krugman (2004) provide a non-technical survey.

cultural characteristics of a firm's environment, rather than its corporate culture.[2] To the best of our knowledge, there is no previous work available on the role of a firm's cultural environment for its performance.

We will argue that—in addition to the standard determinants (such as a firm's age, size, legal form, etc.)—both geographic and cultural variables contribute significantly to the explanation of firm bankruptcy. We focus our analysis on bankruptcy in Switzerland. We believe this country to be particularly well-suited for analyzing the links between survival and geography (or culture, respectively) for the following reasons:

(i) Swiss federalism grants regional institutions—i.e., cantons (states) and communities—strong competencies in designing and executing economic policy. In particular, cantons and communities enjoy extensive tax autonomy, allowing them to set their own tax rates, decide about regional public spending, and determine a large proportion of public (infrastructure) investment.[3] As a result, there is considerable variation in key economic variables such as private tax rates, corporate tax rates, public spending, public investment, unemployment, and growth, both across space and time.

(ii) The Swiss Federal Statistical Office (2005) provides publicly available data that characterize Switzerland's geographic structure in very fine detail. Switzerland is structured into 26 cantons, which remained largely unchanged since 1815. As of 2000, these cantons comprised 2,896 communities, each categorized into one of 22 different community types—which are aggregated into nine "main types"—according to the so-called "community typology". Based on a core-periphery-approach pioneered by Gottman (1980), this community typology provides a meaningful classification of communities into various variants of urban and rural communities. We will discuss this typology, which is instrumental for our analysis, in some more detail in Section 3.1.

(iii) Switzerland is generally regarded as a both ethnically and culturally diverse country. In Fearon's (2003) ranking of ethnic fractionalization by country, Switzerland ranks second in the group "Western Europe and Japan" with a value of 0.575 (behind Canada with 0.596, but ahead of Belgium with 0.567).[4] In his ranking of

[2] Sørensen (1998) surveys the literature on the role of corporate culture for firm performance and provides evidence that strong-culture firms have a less variable performance in relatively stable environments, but loose this advantage in volatile environments.

[3] See Feld and Kirchgässner (2001) for an analysis of income tax competition at the state and local level in Switzerland.

[4] Fractionalization is the most common measure of aggregate ethnic diversity. It is defined as the probability that two individuals selected at random from a country will be from different ethnic groups.

cultural diversity, Switzerland ranks third with a value of 0.418 (behind Canada with 0.499 and Belgium with 0.462).[5] In any case, it is certainly extraordinary that Switzerland (with around 7.5 million residents) has no less than four different official languages (French, German, Italian, and Rhaeto-Romanic).

To study the role of geography and culture in explaining firm bankruptcy, we use an enhanced version of the database employed in Buehler et al. (2005, 2006). Our database includes firm-specific information from the Swiss Business Census 1995, which is a complete inventory count of all firms active in September 1995 (excluding the agricultural sector), and the Dun & Bradstreet exit data base for Switzerland, ranging from January 1994 to December 2000. Moreover, the database contains the complete geographic community typology provided by the Swiss Federal Statistical Office (2005), as well as variables characterizing the firms' cultural environment, such as the relevant official language, and the population shares of the Roman Catholic Church and the Evangelic Reformed Church.[6] Finally, the database comprises various time-varying economic variables reflecting local business conditions at the cantonal level, including tax rates, public expenditures, unemployment, and growth. Overall, our sample includes 68,681 firms from all major industries and all areas of Switzerland.

Employing a Cox model with time-varying covariates (Van den Berg 2001), we establish the following main results. *First*, the geographic location of a firm has a significant impact on its bankruptcy rate. In a simple specification, where we use the standard variables plus a set of cantonal dummies to control for geographic location, we find significant coefficients for almost half of the cantons. In a refined specification, where we use the relevant community types emanating from the core-periphery approach rather than cantonal dummies and add a number of variables proxying for the cultural environment and the local business conditions, we still find that geography has a significant impact: Firms located in suburban communities experience the highest bankruptcy rates, whereas firms located in touristic communities benefit from the lowest bankruptcy rates. Firms located in affluent communities also experience significantly lower bankruptcy rates than firms located in urban communities. Interestingly, cantonal tax and spending policies have little effect on bankruptcy rates, whereas cantonal unemployment and growth rates have a strong impact. Our estimates are consistent with the notion that local demand conditions are crucial determinants of the likelihood of bankruptcy (Lane and Schary 1991,

Formally, if the shares of ethnic groups are given by $p_1, ..., p_n$, then fractionalization is $F \equiv 1 - \sum_{i=1}^{n} p_i^2$ (Fearon 2003, 208).

[5] To measure cultural diversity, Fearon (2003) defines a resemblance factor $r_{ij} \in [0, 1]$ for two ethnic groups i and j, which is zero if the groups' languages come from completely different families and one if the groups speak the same language. Cultural diversity is then defined as $D \equiv 1 - \sum_{i=1}^{n} \sum_{j=1}^{n} p_i p_j r_{ij}$.

[6] The Roman Catholic Church and the Evangelic Reformed Church are the most common religious denominations in Switzerland (see Section 3.2 for further details).

Love 1996a, b), and they suggest that cantonal tax and spending policies are relatively ineffective in influencing these conditions.

Second, cultural proxies have significant explanatory power for bankruptcy rates. Firms located in the Italian-speaking area suffer from significantly higher bankruptcy rates than firms located in German- and French-speaking areas, even after controlling for differences in industry structure, community types, and local business conditions. A potential explanation for these differences in bankruptcy rates are differences in the attitude towards risk. Moreover, bankruptcy rates are found to be decreasing in the population shares of the Roman Catholic Church and the Evangelic Reformed Church. These findings are in line with the "Weberian perspective" that religious beliefs foster traits such as work ethic and thrift and thus positively affect economic performance (McCleary and Barro 2006).

Third, we confirm the literature's earlier finding that firm- and industry-specific characteristics as well as macroeconomic conditions contribute significantly to the explanation of firm bankruptcy. More specifically, our results suggest that, even after extending the analysis of firm survival to the realm of geography and culture, the results of the previous literature for the standard determinants remain valid. In sum, our results indicate that both geography and culture contribute significantly to the explanation of bankruptcy rates.

The remainder of the paper is structured as follows. Section 2 explores the potential links between bankruptcy and geography (and culture, respectively). Section 3 provides some background information on the geography and culture of Switzerland. Section 4 describes the data set and the key variables. Section 5 sets out the empirical model and discusses our main results. Section 6 concludes.

2 Linking Bankruptcy to Geography and Culture

The survival literature has generally focused on firm- and industry-specific characteristics as well as the relevant macroeconomic conditions as potential determinants of bankruptcy. Van Kranenburg et al. (2002) survey this literature and provide an empirical analysis that treats these factors in an integrated way. Recent papers by Fotopoulos and Louri (2000), Berglund and Brännäs (2001), Dunne et al. (2005), and Glauben et al. (forthcoming) provide evidence that exit rates tend to vary across regions. However, due to data limitations, these papers do not link the variation in exit rates across regions to the characteristics of these regions in a systematic way. Moreover, the survival literature has literally ignored the role of culture in explaining bankruptcy rates.

In the following subsections, we describe the potential links between bankruptcy

and geography, and bankruptcy and culture, respectively, suggested in the previous literature. Even though parts of this literature may be tentative, we think that it can serve as a useful point of reference.

2.1 Why Should Bankruptcy Rates Vary Across Regions?

The economic literature offers a number of potential explanations for the observation that bankruptcy rates tend to vary across regions. Love (1996a, b) suggests a simple model of entrepreneurial choice to explain the variation in exit rates, where each individual compares expected earnings from employment with expected profits from running a business. He argues that local income or average local wages should be viewed as key determinants of exit decisions, as "most firms are geared towards serving the local area" (Love 1996a, 108). Moreover, he claims that the likelihood of exit is largely determined by how favorable conditions are for businesses primarily relying on local demand. The latter reasoning is in line with Lane and Schary's (1991) finding that local business conditions were the key determinants of variations in business failures across states in the U.S.

Local unemployment is often viewed as a key indicator of how favorable local business conditions are. It is worth noting, however, that the effect of unemployment on bankruptcy rates is not clear-cut. Following Hudson (1989) and Evans and Leigthon (1990), it is sometimes argued that—due to lower opportunity costs—unemployed workers will be more likely to found new firms than employed workers, and that these firms tend to be less competitive, so that they are more likely to fail. This line of argument suggests that unemployment should have a positive impact on bankruptcy rates.[7] Alternatively, one could argue that, from a firm's point of view, conditions on the labor market are favorable if unemployment is high, as firms can then hire employees at relatively low cost. This view would suggest that unemployment has a negative impact on bankruptcy rates. Despite these ambiguities, Everett and Watson (1998) consistently find (allowing for different types of exit) that unemployment has a positive impact on exit rates.

We will argue that a firm's geographic location is a crucial determinant of its bankruptcy risk. The new economic geography emphasizes that a spatial core-periphery structure may arise endogenously from the interplay of centripetal and centrifugal forces (Krugman 1998, 8): Firms located in agglomerations benefit from various centripetal forces, including market-size effects, thick labor markets, and pure external economies (e.g. information spillovers). The centrifugal forces working against agglomeration are related to immobile production factors, rents, and pure external diseconomies (e.g. con-

[7] Note that a reversed chain of causation, where firm exits lead to increases in unemployment, would also lead to a positive relation between exit rates and unemployment.

gestion). Due to data limitations, the previous literature has not been able to analyze the role of the core-periphery approach for explaining bankruptcy rates (or, more generally, firm performance). Using the community typology provided by the Swiss Federal Statistical Office (2005), we are in a unique position to examine—based on a specific core-periphery approach—how a community's characterization affects bankruptcy rates. In particular, we are interested in comparing bankruptcy rates in urban and rural communities. Another interesting comparison will concern the bankruptcy rates in touristic and affluent communities.

Since industries tend to cluster, it is crucial to account for industry-specific effects when studying the variation in bankruptcy rates across regions. It is well known that exit rates vary considerably across industries. Dunne et al. (1988), for instance, report substantial and persistent differences in exit rates across U.S. manufacturing industries.[8] There are a number of potential explanations for such differences, including the intensity of competition (Symeonidis 2002), the industry life cycle (Mata et al. 1995, Agarwal and Gort 1996), and the speed of innovation (Geroski 1995, Audretsch 1995, Segarra and Callejón 2000). Our data set allows us to study such industry-specific effects at the level of the Swiss equivalent to the two-digit standard industrial classification (SIC) code.

Finally, local business conditions should be expected to be affected by economic policy at the local level. As noted above, Swiss federalism grants both cantons and communities strong competencies in designing and executing economic policy, which is reflected, for instance, by the considerable variation in tax rates faced by private residents and corporate firms across cantons. There is also a considerable variation in public spending and infrastructure investment across cantons. Our data set contains various variables controlling for time-varying economic policy at the cantonal level.

2.2 Why Should Culture Affect Bankruptcy Rates?

In the last decades, economists largely ignored the potential role of culture in explaining economic outcomes. This is especially true for the literature on bankruptcy: We are not aware of a single contribution on the cultural determinants of bankruptcy. From an economic point of view, the key problem with the common notion of culture is that it is so broad that it is difficult to sensibly incorporate it into economic analysis. Or, as Fernández and Fogli (2005, 4) put it: "Culture is a rather hazy concept". To study the (potential) links between culture and economic outcomes such as firm bankruptcy, it is thus crucial to clarify the notion of culture. Here, we follow Guiso et al. (2006, 23) in defining culture as

[8] Buehler et al. (2005) document significant differences in exit rates across industries in Switzerland.

> "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation."

This narrow definition of culture has two important advantages: First, it restricts attention to the role of culture for "beliefs" and "values" (i.e., preferences) of individual decision makers, which places the notion of culture within the framework of standard economic theory. Second, it focuses on those components or aspects of culture that can safely be assumed to be of long-term character. This is important to avoid the potential endogeneity problem that economic outcomes themselves might contribute to the evolution of culture. In the following, we focus on the official languages as well as the population shares of the Roman Catholic Church and the Reformed Evangelic Church as proxies for the local cultural environment in which firms operate. In addition, we use the number of criminal convictions, which might also be viewed to reflect the population's beliefs and values.[9]

To be sure, while this is the first paper attempting to analyze the role of culture in explaining firm bankruptcy, the debate on the role of culture and religion in explaining economic outcomes has a fairly long history (Guiso et al. 2006, McCleary and Barro 2006). Yet, it is only recently that new datasets and better empirical tools have led to a revived interest in the links between culture and the economy. Based on a survey of this literature, McCleary and Barro (2006, 51) seem to take what could be called a "Weberian perspective", arguing that religious beliefs "can raise productivity by fostering traits such as honesty, work ethic and thrift", and thus positively affect economic outcomes.[10] In the context of firm bankruptcy, this view suggests that high population shares of the most common religious denominations should be associated with low bankruptcy rates. The role of the local official language (or the number of criminal convictions) in explaining bankruptcy rates, however, remains ambiguous. Here, the underlying idea is that these variables reflect the local population's beliefs and preferences (e.g. regarding risk).

3 Some Background on the Geography and Culture of Switzerland

In this section, we provide relevant background information on the geography and culture of Switzerland. More specifically, we first discuss the spatial structuring of Switzerland

[9] Buckley and Brinig (1998) show that social norms have explanatory power for (private) bankrupty filings.

[10] In another recent paper, Ottaviano and Peri (2006) also argue that culture is relevant for economic outcomes. Specifically, they document that U.S.-born citizens benefited significantly from the growing cultural diversity associated with the increase in the share of foreign-born citizens from 1970-1990.

into cantons and communities. Next, we describe the fragmentation of Switzerland into linguistic areas and religious denominations.

3.1 Geography: Cantons and Communities

Covering just about 41,000 square kilometers, Switzerland is a comparably small federal state in Western Europe. The country consists of 26 cantons and 2,896 communities (as of 2000). Since the end of the Viennese congress in 1815, the territory of Switzerland remained largely unchanged. Similarly, the internal structure of Switzerland has been very stable during the last decades, and despite considerable differences (e.g. regarding expansion and population),[11] all cantons share the same legal status (Federal Statistical Office 2005, 15). Figure 1 shows the 26 cantons and their capital cities.

<Figure 1: The 26 Cantons and Capital Cities>

As noted above, Swiss federalism grants the cantons strong competencies in designing and executing their own policies, including economic policy. This is reflected in strong variation in private and corporate tax rates, public spending and investment, as well as unemployment and growth, both across cantons and over time. Cantons also differ widely regarding their population and industry structures, even though these structures appear to vary less over time. In our empirical study below, we shall exploit both the variation across cantons and the variation over time.

The cantons themselves are structured into varying numbers of communities. The canton of Berne, for instance, consists of 400 communities, whereas the canton of Basle-City comprises merely 3 communities (Federal Statistical Office 2005, 32). Again, there is strong variation in the characteristics of these communities. In "The Spatial Structures of Switzerland", the Federal Statistical Office (2005) provides a systematic characterization of each single community, based on a core-periphery approach deriving from Gottman (1980). This characterization—also called "community typology"—associates each community with one of 22 community types. These types are then aggregated into the nine "main types" listed in Table 1.[12]

The main type *Center* comprises large, medium and small cities, which typically form the core of an agglomeration. The *Suburban* type contains both suburban communities and job-rich communities. The *Affluent* type contains communities with real income per

[11] For instance, the population ratio of the largest and the smallest canton is 85/1. The expansion ratio amounts to 192/1.

[12] The categorization of communities into 22 community types follows from a set of hierarchically-related criteria. A detailed discussion of these criteria and the process of aggregation into the nine main types is beyond the scope of this paper. See Federal Statistical Office (2005, pp. 115) for further details.

Table 1: Main Community Types, 2000

Type	Description	No. of Communities	%
(1)	*Center*	69	2.4
(2)	*Suburban*	332	11.5
(3)	*Affluent*	88	3.0
(4)	*Periurban*	464	16.0
(5)	*Touristic*	164	5.7
(6)	*Industrial & Tertiary*	349	12.1
(7)	*Rural Commuting*	632	21.8
(8)	*Agrarian Mixed*	494	17.1
(9)	*Agrarian*	304	10.5
	Total	**2,896**	**100.0**

Source: Swiss Federal Statistical Office (2005, 126).

capita exceeding some threshold level. The *Periurban* type collects communities that are located in an agglomeration but do not qualify as suburban or affluent communities. The *Touristic* type contains communities that are located outside agglomerations and feature a high number of touristic overnight stays. The *Industrial & Tertiary* type collects communities where the production of industrial goods and services is particularly high, including periphery centers. The *Rural Commuting* type contains communities outside agglomerations where the share of people commuting to workplaces elsewhere is above some threshold level. The *Agrarian Mixed* and the *Agrarian* type collects communities with a relatively high share of agrarian production.

Inspection of Table 1 indicates that almost half of the communities are classified as predominantly rural or agrarian communities (main types (7), (8) or (9)). The number of touristic and affluent communities (types (3) and (5)) is comparably small. Figure 2 provides a map showing the distribution of the main community types across the country.

<Figure 2: Main Community Types>

3.2 Culture: Language and Religion

In line with our narrow definition of culture from Section 2.2, we primarily focus on official languages and religious denominations as proxies for the cultural environment in which firms operate. Figure 3 provides a map with the four different linguistic regions. Inspection indicates that German and French are the most common languages, followed by Italian and Rhaeto-Romanic (see also Table 2 below). Note that the borders of linguistic regions do not necessarily coincide with the border of cantons. In fact, the cantons of Berne, Fribourg and Valais are well-known for being bilingual (with French

Table 2: Religious Denominations and Linguistic Regions, 2000

	Linguistic Region				Total
Religious Denomination	**German**	**French**	**Italian**	**Rhaeto-R.**	**%**
Evangelic Reformed Church	37.41	24.86	6.05	28.90	33.04
Evangelic Methodist Church	0.15	0.02	0.01	0.02	0.12
New Pietist Evangelic Congr.	0.54	0.20	0.08	0.25	0.44
Pentecostalism	0.30	0.23	0.12	0.05	0.28
New Apostolic Church	0.47	0.15	0.14	0.11	0.38
Jehova's Witnesses	0.26	0.29	0.54	0.05	0.28
Other Protestant Churches	0.66	1.01	0.19	0.10	0.72
Roman Catholic Church	38.30	45.79	76.11	62.61	41.82
Old Catholic Church	0.20	0.12	0.18	0.07	0.18
Christian Orthodox Churches	1.95	1.32	2.28	0.79	1.81
Other Christian Confraternities	0.19	0.24	0.08	0.06	0.20
Jewish Denomination	0.20	0.41	0.12	0.01	0.25
Islamic Confraternities	4.66	3.56	1.84	1.14	4.26
Buddhistic Aggregations	0.32	0.25	0.14	0.02	0.29
Hindu Aggregations	0.46	0.21	0.14	0.04	0.38
Other Churches and Religions	0.10	0.16	0.04	0.04	0.11
No Affiliation	10.25	14.54	7.33	3.10	11.11
No Answer	3.57	6.62	4.62	2.63	4.33
Total (100%)	5,221,135	1,720,365	320,247	26,263	7,288,010

Source: Swiss Federal Statistical Office (2004, 111).

and German as official languages), whereas the canton of Graubuenden is even trilingual (with German, Italian, and Rhaeto-Romanic as official languages).[13]

<Figure 3: Cantons and Linguistic Regions>

As to the religious denominations, it is important to note that there is no country-wide state religion. Table 2 provides the population shares of the various religious denominations and their respective role in the four linguistic regions. The Catholic and the Evangelic Reformed Church are the most common religious denominations in all four linguistic regions. The third-largest group of the population is not affiliated with any religious denomination. Relatively large groups of the population further adhere to the Islamic Confraternities and the Eastern Orthodox Church.

Figure 4 provides a map showing the role of the Catholic and the Reformed Evangelic Church at the community level. In rural areas, the majority of the population traditionally tends to adhere to the Roman Catholic Church, whereas in agglomerations, the Evangelic Reformed Church tends to dominate. Yet, migration has somewhat loosened

[13]Numerous other (non-official) languages are being spoken by subgroups of the population in each canton, including English, Serbian, Croatian, Albanian, and Turkish.

this pattern, and there is now a considerable number of communities where less than 40% of the population adhere to either the Catholic or the Evangelic Reformed Church.

<Figure 4: Religious Denominations>

4 Data and Variables

In this section, we briefly discuss our dataset and the most important variables used for the analysis of the determinants of firm bankruptcy.

4.1 Sample Composition

For the purpose of this study, we merged the following three databases:

(i) The *Swiss Business Census* (SBC 95). The SBC 95 is a complete inventory count of all firms with more than 20 weekly aggregate working ours existing in September 1995, excluding the agricultural sector. It is compiled by the Federal Statistical Office and contains numerous variables characterizing the attributes of these firms as of September 1995, including their size, age, and legal form. Importantly, the database also contains the firms' host community, which allows us to characterize their geographic location using the community typology described in Section 3.1

(ii) The *Dun & Bradstreet Exit Database* (DBED). The DBED provides all bankruptcies of firms registered in Switzerland from January 1994 to December 2000.

(iii) The *Spatial Structures of Switzerland* (SSS). As noted above, the SSS is compiled by the Federal Statistical Office and provides a geographic characterization of each community based on a core-periphery approach. Moreover, it contains rich information on various other aspects of the spatial structure of Switzerland.

In addition to these databases, we collected data from various others official sources, including the Federal Fiscal Authority and the Swiss National Bank.

The observation period of the merged database ranges from October 1995 to December 2000. In line with previous literature, we deleted all firms that were non-profit oriented according to their legal status (such as cooperatives, associations, foundations, churches, and international organizations).[14] Furthermore, we dropped all firms established before 1970, for lack of information on their founding dates. After dropping

[14]Note that deleting these firms from the sample helps avoid that possible differences in corporate culture across profit-maximizing and non-profit firms affect our estimates.

these firms, the merged database is still comprehensive and includes 68,681 firms. More specifically, our sample comprises firms of all sizes that have been in business up to 25 years. With the exception of agriculture, our sample includes all industries represented in Switzerland, including services, which has rarely been the case in previous studies. Crucially, our sample comprises firms from all main community types represented in Switzerland.

4.2 Variables and Descriptive Statistics

We first explain the construction of our dependent variable (a firm's lifetime), and then discuss the explanatory variables. Table A1 in the Appendix summarizes the descriptive statistics.

4.2.1 Dependent Variable

Our dependent variable is a firm's lifetime, measured by how many quarters a firm stayed in business (*Duration*). The database records a bankruptcy if a firm filed for bankruptcy between October 2, 1995, and December 31, 2000. For the exact date, we use the first available date which, in the bulk of cases, is when the court instituted bankruptcy proceedings.

Using the founding time and the time of bankruptcy, it is straightforward to calculate the duration of a firm's lifetime. It is important to note that the resulting duration data is right-censored: For the many firms that have not left the pool during the survey period, we know that the true duration is at least as large as the observed duration. Furthermore, the data is left-truncated, as all the firms in our sample must have been founded prior to October 1995 and thus have been at risk before coming under observation. Both right-censoring and left-truncation must be taken into account when estimating the probability of bankruptcy.

4.2.2 Explanatory Variables

Firm Attributes Due to the left-truncation in our sample, all firm attributes refer to the date when the firm filed for the business census in September 1995. Following previous literature (see, e.g., Brüderl et al. 1992, Audretsch 1995, Harhoff et al. 1998), we operationalize firm size by the log of the number of employees (*LnEmp*). We also include the square of this variable ($(LnEmp)^2$) to allow for non-monotonicity. As an additional proxy, we use the log of the number of apprentices (*LnApp*).[15] The latter

[15] Size variables are commonly log-transformed, as it is natural to assume that the marginal effect of size on bankruptcy decreases.

variable may be viewed to reflect a firm's expectation of its future success: A large firm that does not employ apprentices signals that it is not willing to spend resources for long-term development and focuses instead on short-term survival.

The legal form of firms is classified into four groups differing with respect to initial capital requirement (Brüderl and Schüssler 1990), ease of ownership transfer and liability rules (Harhoff et al. 1998), as well as tax treatment: (i) Partnerships (*Partner*), (ii) limited liability companies (*Lim Liab*), and (iii) stock corporations (*Stock Corp*). The fourth legal form, sole proprietorships, was dropped because the DBED covers the bankruptcies of sole proprietorships incompletely. Throughout the study, we use *Partner* as the reference variable.

Another important firm attribute is the export share of a firm. This share is calculated as the ratio of a firm's exports over its turnover. The SBC 95 distinguishes four groups of firms: (i) non-exporting (*Export_1*), (ii) exporting less than one-third of the turnover (*Export_2*), (iii) exporting between one-third and two-thirds (*Export_3*), and (iv) exporting more than two-thirds (*Export_4*). Here, we use *Export_1* as the reference variable.

Industry-Specific Attributes The SBC 95 records the industry in which a firm primarily operates. To control for industry-specific effects, we use a series of 23 dummies which represents the Swiss equivalent to the two-digit standard international industrial classification (SIC) code. The food industry (*Food*) serves as the reference variable.[16]

Macroeconomic Conditions Since Switzerland is a small open economy, it is crucial to control for changes in the exchange rate of the Swiss currency. We use a time-varying index of the currency's external value provided by the Swiss National Bank (2003), which is based on the real exchange rates with the 24 most important trade partners (*Ext Val*).[17]

As an additional proxy for the aggregate movement of the Swiss economy, we employ the aggregate number of bankruptcies from the previous year (*Bankrupt*). This is in line with work by Van Kranenburg et al. (2002), Ranger-Moore (1997), and Roberts and Thompson (2003).

Geographic Determinants In a simple specification, we use a series of cantonal dummies to control for geographic effects at the cantonal level. In this specification, we employ the canton of Zurich (*Zurich*) as the reference variable.

[16] As the firm-specific attributes, these dummies do not vary over time.

[17] Since we use a one-year lag specification, we use values from 1994-1999 for our estimations.

In a refined specification, we replace the cantonal dummies by a series of variables. First and foremost, we use the much finer community typology described in Section 3.1 to characterize each firm's geographic location. For this specification, central communities (*Center*) serve as the reference group. Second, we attempt to control for differences in the business conditions at the cantonal level, using a series of time-varying variables. More specifically, we employ the following variables: The level of private and corporate tax rates (*Private Taxes* and *Public Taxes*, respectively), public spending (*Public Spend*), the level of public investment (*Public Invest*), the level of unemployment (*Unemployment*), and the growth rate (*Growth*). Third, we employ a number of variables controlling for differences in the population structure at the cantonal level. Specifically, we control for the lagged migration balance (*Migration Bal*),[18] the share of foreign population (*Foreignsh*), and the average age of the population (*Age*).[19]

Cultural Determinants As variables proxying for cultural differences, we control for the linguistic area in which a firm is located (*German*, *French*, *Italian*).[20] Here, firms operating in the German-speaking area (*German*) serve as the reference group.

As additional indicators, we employ the shares of the religious denominations at the cantonal level to characterize the cultural environment in which firms operate. To avoid estimation problems with extremely small shares, we focus on the shares of the Roman Catholic Church (*Catholic*) and the Evangelic Reformed Church (*Reformed*) and pool all other religious denominations, which together serve as the reference group (*Pooled Den*).

Finally, we use the number of criminal convictions (*Convictions*) in each canton as an additional cultural proxy.

5 Empirical Model and Results

5.1 Modelling Bankruptcy Rates

We use duration models to characterize the probability of a firm's bankruptcy. Let $T_i, i = 1, ..., n$, denote the duration of firm i's survival in the market, and let $F_i(t) = \Pr(T_i < t)$ be the distribution function determining the probability that firm i exits before time t, with corresponding density function $f_i(t)$. Similarly, let $S_i(t) = \Pr(T_i \geq t) = 1 - F_i(t)$

[18] That is, we aggregate the migration into and out of a given canton.

[19] We qualify the variables *Migration Bal* and *Foreignsh* as geographic rather than cultural determinants, as it is not obvious how they reflect "customary beliefs and values" as requested by our definition of culture (see Section 2.2).

[20] Since the number of firms in the Rhaeto-Romanic region is extremely small, we use the five main regions of Switzerland to associate each firm with the relevant official language.

denote the survivor function. The hazard function $h_i(t) = f_i(t)/S_i(t)$ then denotes, somewhat loosely, the rate at which firm i exits at time t, given that it has survived up to time t. Below, we shall allow for time-varying covariates, so that the hazard function is given by

$$h_i(t|\,\mathbf{x}_i(t)) = \lim_{dt\to 0} \frac{\Pr\left(T_i \in [t, t+dt] |\, T_i \geq t, \{\mathbf{x}_i(u)\}_{u=0}^{t}\right)}{dt},$$

where $\{\mathbf{x}_i(u)\}_{u=0}^{t}$ denotes the time path of firm i's vector of observed covariates (Van den Berg 2001). The most popular empirical specification is the Cox (1972, 1975) model

$$h_i(t|\,\mathbf{x}_i(t)) = h_0(t)\exp(\mathbf{x}_i'(t)\boldsymbol{\beta}),$$

where $h_0(t)$ in an unspecified non-negative baseline hazard which determines the shape of the hazard function, $\exp(\mathbf{x}_i'(t)\boldsymbol{\beta})$ is the systematic part of the hazard, and $\boldsymbol{\beta}$ is the coefficient vector. The latter can be estimated consistently by maximizing a partial likelihood function that does not depend on the baseline hazard (Kalbfleisch and Prentice 1980; Van den Berg 2001).

5.2 Results

In this section, we present our results from estimating two different hazard specifications. Note that instead of the estimated coefficients $\widehat{\beta}_j$, we report the estimated hazard ratios

$$\widehat{H}_j = \frac{\widehat{h}(t|\,x_j = x_j^0(t)+1, \mathbf{x}_{-j}(t))}{\widehat{h}(t|\,x_j = x_j^0(t), \mathbf{x}_{-j}(t))} = \exp(\widehat{\beta}_j), \quad j = 1, ..., p,$$

with $\mathbf{x}_{-j}(t) = (x_1(t), ..., x_{j-1}(t), x_{j+1}(t), ..., x_p(t))$. The hazard ratio is the factor by which the hazard function is multiplied if the covariate x_j increases by one unit. That is, if $\widehat{H}_j = 1$, the hazard rate does not change in response to a change in covariate j, whereas the hazard rate increases (decreases) if $\widehat{H}_j > 1$ ($\widehat{H}_j < 1$, respectively).

5.2.1 Basic Specification

Table 3 reports the results from estimating a basic specification of the hazard function. This basic specification contains both standard variables—such as firm size, legal form, and variables controlling for the macroeconomic conditions—and a series of cantonal dummies describing geographic location. We have also added variables controlling for the export activity of a firm, which is crucial for a small open economy such as Switzerland.

We first consider the standard variables. Table 3 indicates that there is an inverted U-shaped relation between a firm's size (*LnEmp*) and its hazard rate, with the impact

of size on bankruptcy reaching its maximum for very small firms (5 employes) and then decreasing monotonically. That is, we essentially find that large firms are less likely to fail than small firms, which is in line with the bulk of the exit literature (see, e.g., Agarwal and Audretsch 2001). The natural log of the number of apprentices (*LnTrainees*), which we further include as a proxy for firm size, supports this finding: The higher the number of trainees, the lower the bankruptcy risk. Another well-known determinant of firm survival is legal form. Our estimates indicate that both stock corporations (*Stock Corp*) and firms with limited liability (*Lim Liab*) exhibit significantly higher bankruptcy rates than partnerships (*Partner*, the reference variable). This finding is consistent with the notion that the owners of corporate companies tend to be less risk-averse and will postpone exit until they are forced to leave the market—which should increase (decrease) the likelihood of bankruptcy (voluntary liquidation). This effect is likely to be reinforced by the possible separation of ownership and management.[21] As to the export orientation, our results indicate that exporting firms tend to have lower bankruptcy rates than non-exporting firms (the reference group). More specifically, firms exporting less than one third (*Exposh_2*) or more than two thirds of their sales (*Exposh_4*) have significantly lower bankruptcy rates than non-exporting firms (*Exposh_1*, the reference variable), whereas the bankruptcy rates of firms with intermediate export share (*Exposh_3*) do not significantly differ from those of non-exporting firms.[22] We use the external value of the Swiss currency (*Ext Val*) and the number of bankruptcies in the previous year (*Bankrupt*) to control for the macroeconomic conditions. Here, we find the intuitive result that an appreciation of the Swiss currency raises hazard rates, as it both decreases the competitiveness of Swiss firms in foreign markets and increases the competitiveness of foreign firms in Swiss markets. Also, an increase in the lagged number of bankruptcies raises hazard rates.

Next, we consider the effect of the geographic variables on exit rates. In this basic specification, we use 25 cantonal dummies to measure regional differences in bankruptcy rates, with the canton of *Zurich* serving as the reference region.[23] The estimates reflect our earlier finding (Buehler et al. 2005, 2006) that bankruptcy rates tend to be lower in German-speaking than in non-German speaking regions. More specifically, we find that bankruptcy rates in all non-German speaking cantons are significantly higher than in the reference canton *Zurich*. The canton of *Neuchâtel* exhibits the highest bankruptcy rates, followed by the cantons of *Vaud*, *Ticino*, and *Valais*. The German speaking canton of

[21] See Schary (1991) for a theoretical analysis.

[22] A potential explanation for this finding is that exporting a little may help to spread risk by diversifying into markets with imperfectly correlated demand, whereas exporting more than two thirds of the sales will typically be feasible only for very competitive firms, which are more likely to survive.

[23] We had to aggregate the cantons of *Berne* and *Jura* to assure a sufficient number of observations in each geographic area.

Appenzell IR shows the lowest bankruptcy rate, significantly lower than *Zurich*. These estimates provide preliminary evidence that geography contributes significantly to the explanation of firm bankruptcy.

5.2.2 Refined Specification

The refined specification of the hazard function differs from the basic specification in Table 3 in the following respects:

(i) We control for the industry in which a firm operates. More specifically, we use the equivalent of the two-digit SIC code for Switzerland (23 dummy variables) to control for industry-specific effects.

(ii) Rather than representing geography by a set of cantonal dummies, we use the nine main types of the community typology given in Table 1 to characterize a firm's geographic location. In addition, we introduce a number of variables controlling for differences in tax levels, public spending, local unemployment, and growth, at the cantonal level. Moreover, we include variables controlling for the composition of the local population, such as the average age, the share of foreigners, and the migration balance, also at the cantonal level.

(iii) We use the official language as well as the population share of the Roman Catholic Church and the Evangelic Reformed Church in each canton to proxy for the local cultural characteristics. In addition, we use the number of criminal convictions in each canton.

Inspection of Table 4 indicates that the coefficient estimates for the variables already contained in the basic specification remain essentially unchanged. That is, the results from the basic specification with respect to firm size, legal form, export orientation and macroeconomic conditions remain valid. As to the industry-specific effects, it should be noted that bankruptcy rates are highest for food & textiles (*Food*, reference variable), construction (*Construct*) and restaurants (*Restaurant*). Bankruptcy rates tend to be low in industries where public administration or regulation plays an important role, such as waste treatment (*Waste*), research and development (*R&D*), and education (*Education*).

Before focusing on the explanatory power of geographic and cultural variables, we briefly comment on the role of the population structure in explaining bankruptcy rates. We find, in particular, that bankruptcy rates are significantly lower in cantons where the average age of the population or the share of foreign population is high. The latter finding may indicate that bankruptcy rates tend to be low in regions where local business conditions have been favorable in the past, thereby attracting (foreign) labor.

Consider now the role of the geographic core-periphery approach in explaining bankruptcy rates. The estimated coefficients for the various community types indicate that the core-periphery approach contributes significantly to the explanation of bankruptcy rates. More specifically, bankruptcy rates are found to be highest in suburban communities, and lowest in touristic communities. Moreover, bankruptcy rates tend to be low in affluent communities. Perhaps somewhat surprisingly, many of the variables controlling for differences in economic policy at the cantonal level are non-significant, including the levels of public spending and public investment. The estimated coefficients nevertheless suggest that, if economic policy aims at reducing bankruptcy rates, an increase in public spending is unlikely to be an adequate instrument. In marked contrast, both the (lagged) unemployment rate and the (lagged) growth rate contribute significantly to the explanation of bankruptcy: Higher growth rates lead to lower bankruptcy rates, whereas higher unemployment rates are associated with higher bankruptcy rates, which is in line with the previous literature. Overall, our results support the notion that local demand conditions are crucial determinants of the likelihood of bankruptcy (Lane and Schary 1991, Love 1996a, b). They also shed new light on the so-called "filtering-down" theory, which suggests that firms tend to move away from urban areas to more peripheral and less sophisticated areas when their products or production processes become more mature and standardized (Thompson 1968, Fotopoulos and Louri 2000). Our finding that bankruptcy rates are highest in suburban and lowest in touristic areas is consistent with this view.

Finally, we examine the impact of the variables characterizing the cultural environment in which firms operate, such as the relevant official language, the population shares of the Roman Catholic and the Evangelic Reformed Church, as well as the number of criminal convictions in each canton. Here, it should be noted that bankruptcy rates are significantly higher in Italian-speaking areas, whereas bankruptcy rates in French-speaking areas are not significantly different from those in German-speaking areas. A potential explanation for these differences in bankruptcy rates are differences in the attitude towards risk: If people in Italian-speaking areas are less risk-averse than in German- or French-speaking areas, firms are likely to accept projects with higher bankruptcy risk.[24] Higher shares of the dominating religious denominations are also found to contribute to lower bankruptcy rates, which is in line with the "Weberian perspective" that religious beliefs foster traits such as work ethic and thrift and thus positively affect economic performance (McCleary and Barro 2006). The number of criminal convictions, however, does not have significant explanatory power.

[24] Unfortunately, there is no data available on the risk preferences of individuals across the country. Weber and Hsee (1998) provide an analysis of cross-cultural differences in the risk preferences of individuals from the P.R.C, the U.S., Germany, and Poland.

6 Conclusion

Starting from the idea that focusing on standard economic determinants alone might lead to an incomplete understanding of important economic phenomena, we have analyzed the role of geography and culture in explaining firm bankruptcy. To do so, we have used a new and comprehensive database from Switzerland, which (i) allows us to characterize each firm's geographic location using a core-periphery approach, and (ii) reflects the well-known ethnic and cultural diversity of the country.

Employing survival analyses, we have established the following main results. First, a firm's geographic location has a significant impact on its bankruptcy rate. Specifically, we find that bankruptcy rates are highest in suburban communities and lowest in touristic communities, which is consistent with the view that local demand conditions are important determinants of the likelihood of bankruptcy. Second, cultural proxies, such as the local official language and the shares of the most common religious denominations, have significant explanatory power for bankruptcy rates: Firms in Italian-speaking areas suffer from higher bankruptcy rates than those in German- or French-speaking areas. A potential explanation for these differences in bankruptcy rates are differences in the attitude towards risk. Moreover, bankruptcy rates are found to be decreasing in the population shares of the Roman Catholic Church and the Evangelic Reformed Church, the most common religious denominations in Switzerland. This finding supports the "Weberian perspective" that religious beliefs foster traits such as work ethic and thrift and thus improve economic performance. Third, the results of the exit literature for the standard economic variables remain valid, even after controlling for the geography and culture of a firm's environment.

In sum, this paper provides evidence that both geography and culture play a crucial role in explaining firm bankruptcy. This role has found little (if any) attention in the previous literature. Our analysis suggests that future research into the role of geography and culture in explaining economic outcomes is likely to improve our understanding of important economic phenomena.

Appendix: Descriptive Statistics

<Table A1: Descriptive Statistics>

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Table 3: Basic Specification

Variable	Coefficient	Std. Error
Size & Training		
LnEmp	1.279***	0.053
$(LnEmp)^2$	0.929***	0.009
LnTrainees	0.843***	0.038
Legal Form		
Stock Corp	3.055***	0.219
Lim Liab	4.125***	0.342
Export Orientation		
Exposh_2	0.790***	0.041
Exposh_3	0.958	0.073
Exposh_4	0.779***	0.050
Macroeconomic Conditions		
Bankrupt	1.011***	0.003
Ext Value	1.054***	0.004
Cantons		
Bern (with *Jura*)	1.116*	0.069
Luzern	1.058	0.097
Uri	0.756	0.309
Schwyz	0.977	0.130
Obwalden	1.045	0.293
Nidwalden	0.718	0.152
Glarus	0.984	0.258
Zug	1.007	0.096
Fribourg	1.323***	0.117
Solothurn	1.353***	0.135
Basel-Stadt	1.077	0.109
Basel-Landschaft	1.218**	0.111
Schaffhausen	0.793	0.155
Appenzell AR	0.841	0.179
Appenzell IR	0.229**	0.163
St. Gallen	1.091	0.824
Graubuenden	0.861	0.115
Aargau	1.118	0.081
Thurgau	1.275***	0.120
Ticino	1.347***	0.089
Vaud	1.469***	0.087
Valais	1.331***	0.131
Neuchâtel	1.560***	0.158
Genève	1.301***	0.085
Statistics		
$\mathcal{X}^2$ (all variables)	525.73	
Log Likelihood	-40,221.75	
No. of observation	68,681	

*,**,*** Coefficients are significant at the 10%, 5%, 1%, respectively.

Dummy Coding

Legal Form: *Partnership* (ref. variable)

Export Orientation: *Export_1* (no exports) (ref. variable)

Cantons: *Zurich* (ref. variable)

Table 4: Refined Specification

Variable	Coefficient	Std. Error
Size & Training		
LnEmp	1.155***	0.048
$(LnEmp)^2$	0.940***	0.010
Trainees	0.835***	0.039
Legal Form		
Stock Corp	3.354***	0.248
Lim Liab	4.330***	0.364
Export Orientation		
Exposh_2	0.882**	0.048
Exposh_3	1.076	0.084
Exposh_4	0.896*	0.060
Macroeconomic Conditions		
Bankrupt	1.022***	0.004
Ext Value	1.054***	0.004
Industry Structure		
Leather	0.868	0.130
Chemicals	0.649**	0.125
Metals	0.740*	0.118
Machines	0.706**	0.106
Vehicles	0.817	0.255
Furniture	0.949	1.845
Utilities	0.561	0.226
Construct	1.170	0.161
Veh Trade	0.758*	0.115
Wholesale	0.620***	0.086
Retail	0.867	0.121
Restaurant	1.264	0.188
Traffic	0.794	0.123
Banks	0.473***	0.093
Real Estate	0.580***	0.099
Data	0.556***	0.087
R&D	0.428*	0.196
Consulting	0.519***	0.072
Education	0.448***	0.119
Health	0.492***	0.116
Waste	0.229***	0.136
Other	0.731**	0.116
Population		
Migration Balance	0.919	0.060
Foreigner	0.966***	0.007
Age	0.881***	0.025

Table continued on next page

Table 4: Refined Specification (continued)

Variable	Coefficient	Std.Error
Culture		
French	0.971	0.107
Italian	1.571***	0.231
Catholic	0.982***	0.004
Protestant	0.985***	0.003
Convictions	1.040	0.073
Economic Policy		
Private Taxes	0.998	0.002
Corporate Taxes	1.003*	0.002
Public Spending	1.029	0.020
Public Investment	0.934	0.061
Unemployment	1.173***	0.036
Growth	0.987***	0.005
Community Types		
Suburban	1.146***	0.049
Affluent	0.854*	0.077
Periurban	0.945	0.070
Touristic	0.659***	0.087
Industrial & Tertiary	0.987	0.069
Rural	0.930	0.093
Agrarian Mixed	0.918	0.101
Agrarian	0.668	0.190
Statistics		
$\mathcal{X}^2$ (all variables)	745.30	
Log Likelihood	-40,121.83	
No. of observation	68,681	

*,**,*** Coefficients are significant at the 10%, 5%, 1%, respectively.

Dummy Coding

Legal Form: *Partnership* (ref. variable)
Export Orientation: *Export_1* (no exports) (ref. variable)
Cantons: *Zurich* (ref. variable)
Industries: *Food* (ref. variable)
Community Types: *Center* (ref. variable)

Table A1: Descriptive Statistics

Variable	Description	Mean/ Value	Std. Dev./ Fraction
	Survival		
Duration	Lifetime of the Firm (in quarters)	censored/truncated	
	Size & Training		
Emp	Number of Employees	11.59	54.91
Trainees	Number of Trainees	0.42	2.11
	Legal Form		
Partner	Partnerships	0/1	7.14
Stock Corp	Stock Corporations	0/1	13.17
Lim Liab	Limited Liability Firms	0/1	79.69
	Export Share		
Exposh_1	Export Share: $s = 0$	0/1	76.24
Exposh_2	Export Share: $s < \frac{1}{3}$	0/1	12.14
Exposh_3	Export Share: $\frac{1}{3} \leq s \leq \frac{2}{3}$	0/1	4.18
Exposh_4	Export Share: $s > \frac{2}{3}$	0/1	7.44
	Industry Structure		
Food	Food & Textiles	0/1	1.21
Leather	Leather & Paper	0/1	4.28
Chemicals	Chemicals & Glass	0/1	1.55
Metals	Metals etc.	0/1	3.26
Machines	Machines & Equipment	0/1	5.07
Vehicles	Vehicles	0/1	0.27
Furniture	Furniture, etc.	0/1	1.03
Utilities	Utilities (Energy & Water)	0/1	0.22
Construct	Interior & Exterior Construction	0/1	12.07
Veh Trade	Vehicles & Gas Trade	0/1	4.83
Wholesale	Wholesale Trade	0/1	13.85
Retail	Retail Trade	0/1	11.21
Restaurant	Restaurants & Hotels	0/1	3.82
Traffic	Traffic & Communications	0/1	3.39
Banks	Banks & Insurances	0/1	1.64
Real Estate	Real Estate & Leasing	0/1	2.56
Data	Data Processing & Data Bases	0/1	3.80
R&D	Research & Development	0/1	0.19
Consulting	Consulting	0/1	20.76
Education	Education	0/1	0.73
Health	Health Services	0/1	0.98
Waste	Waste Treatment	0/1	0.22
Other	Other Industries	0/1	3.17

Table continued on next page

Table A1: Descriptive Statistics (continued)

Variable	Description	Mean/ Value	Std. Dev./ Fraction
	Macroeconomic Conditions		
Ext Val	External Currency Value (Index)	102.74	3.99
Bankrupt	Number of Bankruptcies	41.47	5.97
	Cantons		
Aargau	Canton of Aargau	0/1	6.40
Appenzell AR	Canton of Appenzell Ausserrhoden	0/1	0.74
Appenzell IR	Canton of Appenzell Innerrhoden	0/1	0.24
Basel L	Canton of Basel Landschaft	0/1	3.198
Basel S	Canton of Basel Stadt	0/1	2.94
Berne	Canton of Berne	0/1	9.82
Fribourg	Canton of Fribourg	0/1	3.03
Geneva	Canton of Geneva	0/1	7.27
Glarus	Canton of Glarus	0/1	0.42
Graubuenden	Canton of Graubuenden	0/1	2.11
Jura	Canton of Jura	0/1	0.81
Lucerne	Canton of Lucerne	0/1	3.76
Neuchâtel	Canton of Neuchâtel	0/1	1.91
Nidwalden	Canton of Nidwalden	0/1	0.88
Obwalden	Canton of Obwalden	0/1	0.37
Schaffhausen	Canton of Schaffhausen	0/1	0.94
Schwyz	Canton of Schwyz	0/1	1.79
Solothurn	Canton of Solothurn	0/1	2.54
St. Gallen	Canton of St. Gallen	0/1	6.00
Thurgau	Canton of Thurgau	0/1	2.83
Ticino	Canton of Ticino	0/1	6.19
Uri	Canton of Uri	0/1	0.26
Valais	Canton of Valais	0/1	2.96
Vaud	Canton of Vaud	0/1	8.34
Zug	Canton of Zug	0/1	3.43
Zurich	Canton of Zurich	0/1	20.82
	Economic Policy		
Private Taxes	Level of Privat Taxes (Index)	98.93	19.15
Corporate Taxes	Level of Corporate Taxes (Index)	104.47	14.51
Public Spend	Public Spending per Capita (Index)	7.82	2.77
Public Invest	Investment per Capita (Index)	1.21	0.55
Unemployment	Unemployment Quota (%)	4.66	0.79
Growth	Growth Rate (%)	0.10	4.57

Table continued on next page

Table A1: Descriptive Statistics (continued)

Variable	**Description**	**Mean/ Value**	**Std. Dev./ Fraction**
	Population		
Migration	Migration Balance (%)	0.26	0.43
Foreigner	Share of Foreign Population (%)	20.07	6.74
Age	Average Age of Population	38.67	1.54
	Culture		
French	Main Region 4	0/1	24.32
German	Main Regions 1-3	0/1	69.48
Italian	Main Region 5	0/1	6.20
Catholic	Share of Catholics (%)	42.61	19.65
Reformed	Share of Evangelic Reformed C. (%)	32.36	18.64
Convictions	Number of Criminal Convictions p.C.	1.01	0.27
	Geography		
Center	Central Community	0/1	41.35
Suburban	Suburban Community	0/1	29.75
Affluent	Affluent Community	0/1	4.35
Periurban	Periurban Community	0/1	6.97
Touristic	Touristic Community	0/1	2.62
Industrial & Tertiary	Industry & Services Community	0/1	7.64
Rural	Rural Community	0/1	3.73
Agrarian Mixed	Agrarian Mixed Community	0/1	3.08
Agrarian	Agrarian Community	0/1	0.50

The 26 Cantons and Capital Cities

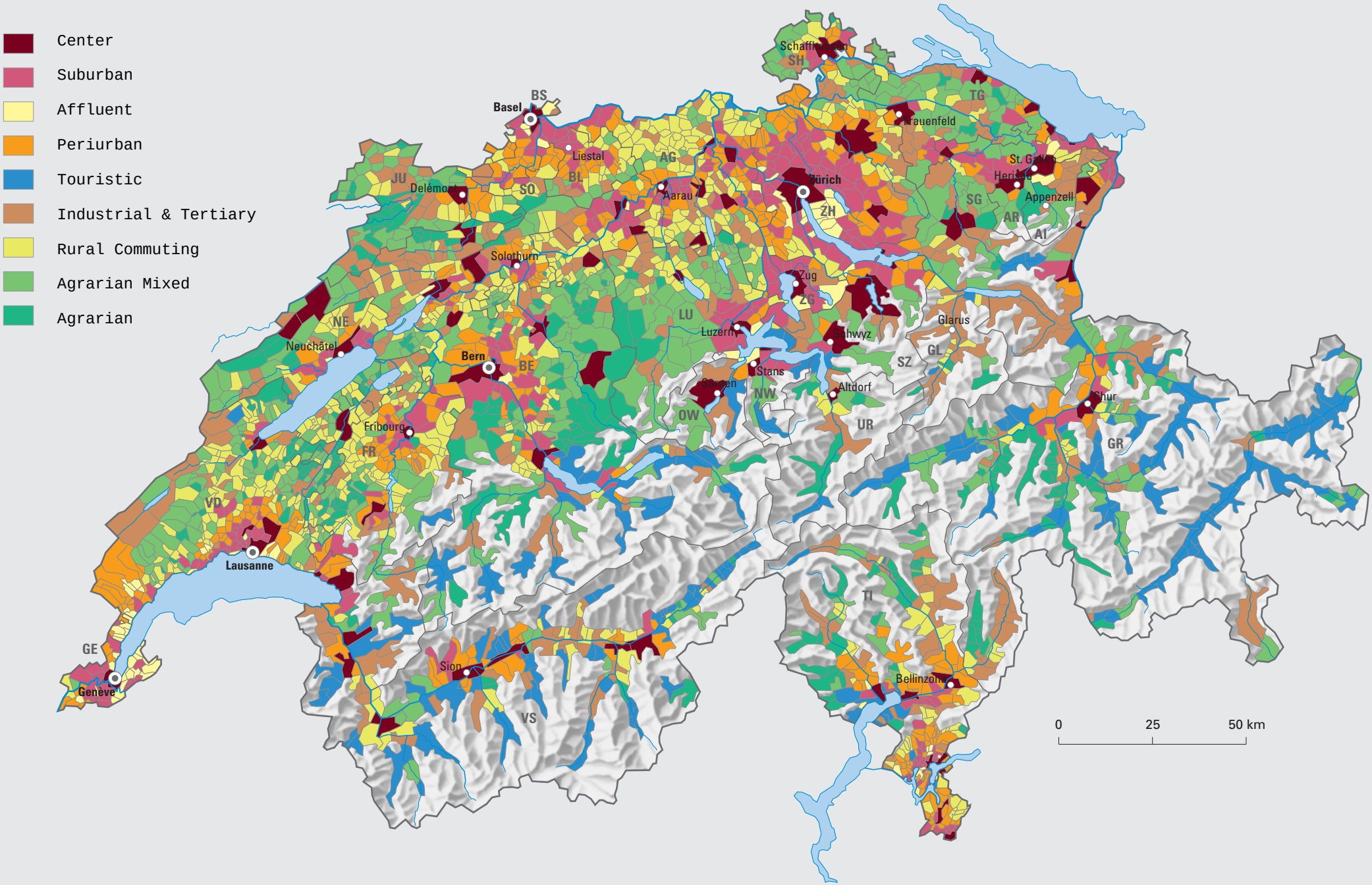
Number / Name

1 Zurich
2 Berne
3 Lucerne
4 Uri
5 Schwyz
6 Obwalden
7 Nidwalden
8 Glarus
9 Zug
10 Fribourg
11 Solothurn
12 Basel-Stadt
13 Basel-Landschaft
14 Schaffhausen
15 Appenzell Ausserrhoden
16 Appenzell Innerrhoden
17 St. Gallen
18 Graubünden
19 Aargau
20 Thurgau
21 Ticino
22 Vaud
23 Valais/
24 Neuchâtel
25 Geneva
26 Jura

Date: December 5, 2000

Source: ThemaKart, OFS

Main Community Types

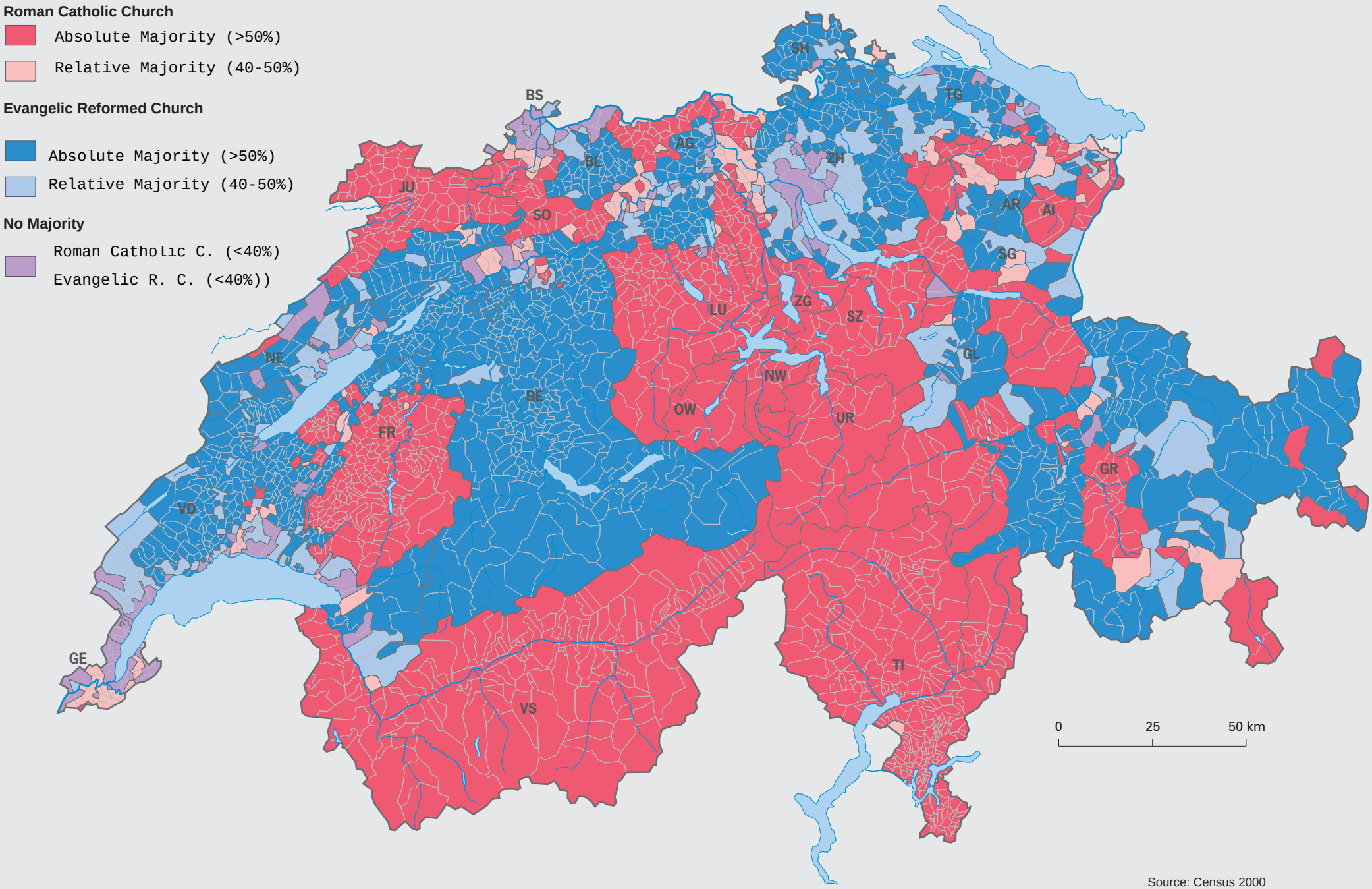


Source: ThemaKart, OFS

Cantons and Linguistic Regions

Source: Census 1990, Federal Statistical Office

Religious Denominations



Source: Census 2000

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